2001 & 2002 Annual Reports

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Prepared By

Missouri Department of Natural Resources
Air and Land Protection Division
Air Pollution Control Program

2001 & 2002 Annual Reports
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I. Executive Summary

The Gateway Clean Air Program is a vehicle emissions inspection and maintenance program that affects vehicles registered in the city of St. Louis and St. Louis, St. Charles, Jefferson and Franklin Counties. The Missouri Department of Natural Resources oversees the program, which is operated by a contractor, Environmental Systems Products (ESP) Missouri. The purpose of this program is to reduce the amount of hydrocarbon emissions from light-duty passenger vehicles and trucks so that the St. Louis ozone nonattainment area meets the National Ambient Air Quality Standard for ground-level ozone, or smog.

This report covers the second and third years of operation of the Gateway Clean Air Program. The report makes the following findings:

- The Gateway Clean Air Program is successfully reducing vehicle emissions and is one of the primary control strategies that contributed to the St. Louis area's redesignation to attainment of the one-hour ground-level ozone standard due to three successive calendar years (2000-2002) of monitored air quality without a violation.

- Continuous improvements have increased both the air quality benefits and the motorist convenience of the program. These improvements include the testing of government fleet vehicles, the Operations Improvement Program, the implementation of final IM240 cutpoints, the redesign of the Repair Data Sheet and the RapidScreen element.

- No state revenue was used to fund the Gateway Clean Air Program. During the two-year reporting period, the Gateway Clean Air Program collected $33 million in emission test fees. This revenue was used solely to fund the cost of the testing contractor's emission test equipment, facilities and staff, the department's oversight staff, and the Gateway Clean Air Program public information efforts.

- The Gateway Clean Air Program spent nearly $1.5 million on public information and outreach during the two-year reporting period. As a result, the public's opinion of the program is growing ever more positive.

- During the two-year reporting period, 161,180 vehicles were repaired. These repairs cost the owners of these vehicles a total of $37 million. The reduction in emissions from these repaired vehicles is the reason that the Gateway Clean Air Program is having the positive impact on the St. Louis area's air quality that it was designed to achieve.

- During the 16 months that the Vehicle Emissions Repair Assistance program was in operation, 1,236 vouchers were redeemed, and $508,290 of the $2.5 million grant was spent. 582 vehicles were repaired to pass the emission reinspection, and 563 vehicles were partially repaired and received a compliance waiver.

- The enhanced vehicle emission inspection rule amendment adopted in 2002 will integrate revised on-board diagnostic testing and stricter compliance waiver requirements into the Gateway Clean Air Program, starting in 2003. These changes will bring about even greater air quality benefits and additional motorist convenience.

II. Introduction

Ground-level ozone, or smog, is formed when sunlight and heat cause pollutants called hydrocarbons and nitrogen oxides to react. Periodic concentrations of ground-level ozone can cause shortness of breath, coughing, wheezing, headaches, nausea, and eye and throat irritation in healthy individuals. These health effects are more severe for children, the elderly and those with pre-existing respiratory problems, such as asthma.

A variety of sources emit these two types of pollutants into the air including gasoline-powered engines. Prior to the implementation of the Gateway Clean Air Program in 2000, air quality in St. Louis had improved significantly. Two gasoline pollution control strategies, Stage II Gasoline Vapor Recovery, implemented in 1989, and reformulated gasoline, implemented in 1999, as well as numerous industrial controls, affecting such industries as dry cleaners, bakeries, and printing and painting operations, had already been implemented. However, the St. Louis area still had air quality that negatively affected the health and quality of life of area residents.

The federal Clean Air Act Amendments of 1990 established national health-based standards for ground-level ozone as well as several other air pollutants. Areas that exceed the health-based standards are known as nonattainment areas. Depending on the amount of ozone that exceeds the standard, areas are classified as marginal, moderate, serious, severe or extreme. During the 2001-2002 reporting period, the St. Louis area was classified as a moderate nonattainment area. The Gateway Clean Air Program was designed to help the St. Louis area achieve the air quality improvements necessary to attain the health-based standard for ground-level ozone.

In 2002, due to the successful implementation of the Gateway Clean Air Program and the other controls mentioned above, the area succeeded in attaining this health-based standard because the St. Louis area had three successive calendar years of monitored air quality without a violation of the one-hour ozone standard. As a result, the department submitted a request to have United States Environmental Protection Agency (EPA) to reclassify the area as a maintenance area. This request was accompanied by a maintenance plan, which detailed how the area will maintain this improvement in air quality for the next ten years. The major components of the maintenance plan include a commitment to continue the use of Stage II Gasoline Vapor Recovery, reformulated gasoline, and the Gateway Clean Air Program in the St. Louis area. On May 12, 2003, the area was officially redesignated by the EPA as a maintenance area for the one-hour ozone standard. For the purposes of this report, the area will be referred to as a nonattainment area. Future reports will refer to the area as a maintenance area for the one-hour ozone standard.

III. 2001-2002 Details of the Gateway Clean Air Program

The Department of Natural Resources and ESP Missouri are continuously improving the Gateway Clean Air Program so the program can achieve maximum air quality gains and maximum customer convenience. What follows are the highlights of the efforts undertaken in calendar years 2001 and 2002 to achieve these goals.

Emission Analyzer Buyback Auction

The department met the statutory obligation to purchase, at current market price, emission analyzers that were used by private businesses in the previous basic emissions inspection and maintenance program. The department sponsored an emissions analyzer auction on February 28, 2001. Of the 99 registered sellers who signed up to participate in the buy-back auction, only 50 sellers chose to participate. The auction resulted in the sale of 43 machines. The remaining seven machines had a higher reserve price than the bid price and were not sold. The sale prices ranged from a low of $10 up to a high of $400.

Government Fleet Vehicles

Federal, state, and local government agencies with fleet vehicles in the St. Louis area are required to submit proof of their vehicles being emission tested to the department on a quarterly basis. In 2001, the department contacted all government fleets, notified each fleet manager of these obligations, and began to track fleet compliance. This effort included phone calls, letters, and even on-site visits. During the first biennial test cycle (2000-2001), 168 unique fleets with a total of 7,083 vehicles were identified. Of these, 149 fleets (89%) complied with the reporting requirement, and 6,803 vehicles (96%) complied with the emission inspection requirement.

The department continues to track the compliance of these fleets on a quarterly basis. To assist government fleet managers in complying with the emission inspection and reporting requirements for fleet vehicles, the department has issued a fact sheet, available on the internet at: http://www.dnr.state.mo.us/oac/pub2109.pdf.

Operations Improvement Program

ESP Missouri's Operations Improvement Program (OIP) was implemented in July 2001 as a "back to basics" program. The OIP is an ongoing process to continually identify the best practices and apply them to all aspects of ESP Missouri's vehicle emission testing operations.

The goal of the OIP is to streamline the test procedure at all emissions inspection stations in order to improve customer perceptions about the quality of service they receive, determine and consistently apply the most efficient methods, practices and procedures for inspecting a customer's vehicle, and provide station managers with improved tools and techniques to effectively and efficiently manage each testing facility.

The successful implementation of OIP at all of the emission testing stations has yielded the following benefits: increased perception that motorists are receiving prompt, courteous and efficient service; a standardized test procedure that maintains the safety of the motorist and the vehicle being tested, leading to a reduction in the number of damage claims filed; and increased testing efficiencies, including reduced motorist wait times at the test stations.

Department of Natural Resources and AAA Missouri officials present free Valvoline Instant oil change, Waterway Gas and Wash and AAA Missouri services to the owner of the one-millionth vehicle emission tested at a test station.

One-Millionth Vehicle Tested

On Sept. 25, 2001, a 1986 BMW was identified as the vehicle on which the one-millionth station-based emissions test was performed. Owned by a resident of Washington, Missouri, the vehicle was tested at a Franklin County mobile site. The vehicle owner was recognized by the Gateway Clean Air Program and presented gift certificates of service donated by American Automobile Association (AAA) Missouri, Valvoline Instant Oil Change and Waterway Gas and Wash.

Decreased Vehicle Damage Claims

The department and ESP Missouri continue to strive for a goal of zero vehicle damage claims. Since January 2001, the department has met with ESP Missouri on a regular basis to review all claims of vehicle damage and track their resolution. These meetings have resulted in improved detailed written responses to claimants that fully outline the reason(s) for denying a claim, refined internal procedures that establish specific timelines for responding to claims, and improved toll-free information line operator response to phoned-in claims of damage.

During the two-year reporting period, the number of vehicle damage claims have been decreasing relative to the first year of operation. This decrease in filed claims is attributed to a number of factors, including the Operations Improvement Program, the public's growing familiarity with the testing process, the production of a specific brochure and waiting area window stickers that describe the sights and sounds of the normal testing process, and the continued efforts by the department and ESP Missouri to test all vehicles in a safe manner.

99.98% of the emissions tests performed at a test station in 2001 and 2002 were conducted without damaging a vehicle. In 2001, 668,527 vehicles were tested at a test station, resulting in 790 claims of vehicle damage being filed. After ESP Missouri and the department investigated all claims, 158 claims (20% of the filed claims) were found to be valid and paid for by ESP Missouri. In 2002, 729,297 vehicles were tested at a test station, resulting in 608 claims of vehicle damage being filed. After ESP Missouri and the department investigated all claims, 193 claims (32% of the filed claims) were found to be valid and paid for by ESP Missouri.

Final IM240 Cutpoints Implemented

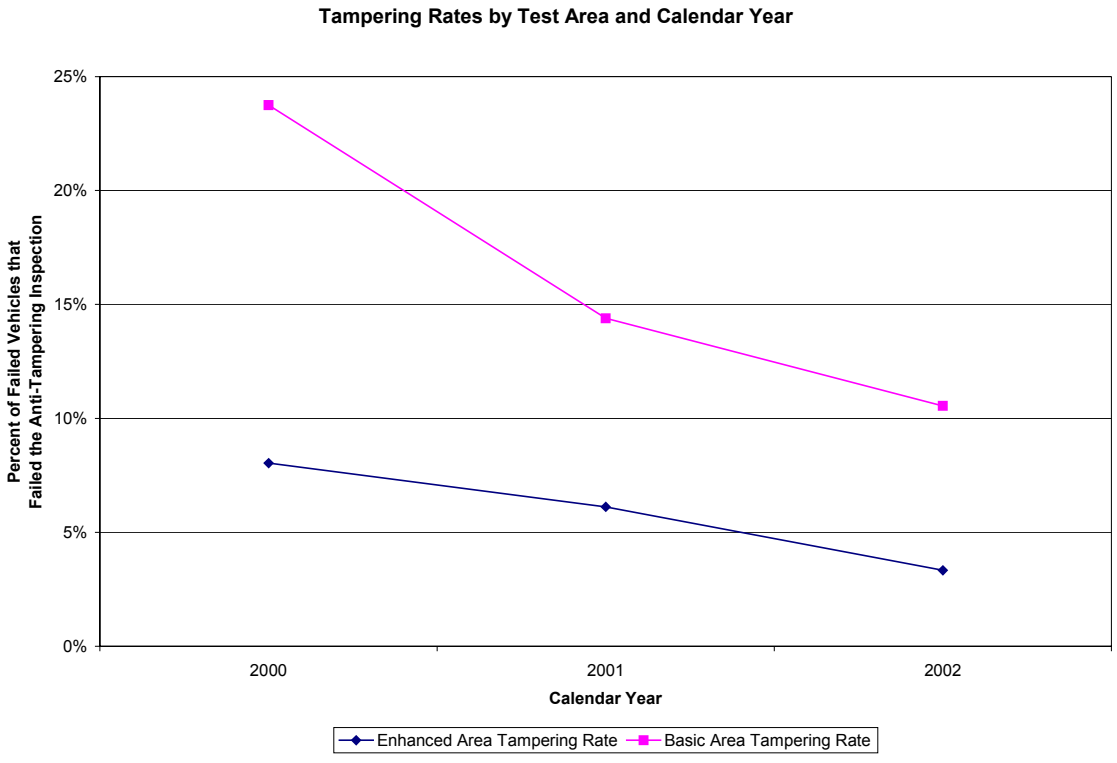
Emission cutpoints are the emission levels above which a vehicle fails the emissions test. The cutpoints vary by model year, vehicle type, and type of pollutant. During the first biennial cycle of the Gateway Clean Air Program, the program used United States Environmental Protection Agency (EPA)-recommended phase-in IM240 cutpoints. The phase-in approach gave the local

repair industry time to enhance their ability to diagnose and repair transient emissions-related problems. This approach also allowed the Gateway Clean Air Program to focus on identifying and repairing those vehicles with the highest tailpipe emissions during the first two years of the program.

As required by the enhanced vehicle emissions inspection and maintenance rule 10 CSR 10-5.380, the IM240 cutpoints were tightened from EPA-recommended phase-in to EPA-recommended final cutpoints on February 4, 2002. Failure rates for all model years that are IM240 tested in the enhanced area have increased, meaning more vehicles are being required to be repaired. The successful repair of these additional vehicles will result in greater air pollution benefits from the Gateway Clean Air Program. For more information about the impact of final IM240 cutpoints on vehicle failure rates, see Volume II A and II B of this report.

Decreased Tampering Failure Rates

Vehicles that fail the emissions tailpipe test are visually inspected for the presence of all manufacturer-installed emission control devices. If a vehicle is found to have an emission control device that is missing, damaged, or incorrect for the vehicle in question, that component is identified on the vehicle test report as having failed the anti-tampering inspection. All identified tampered components must be properly repaired in order for the vehicle to receive a waiver. The cost of repairing these identified components does not count towards the minimum spending amounts of the waiver requirements.



As the chart above illustrates, tampering rates have been decreasing in both the enhanced and basic test areas. The reason that the tampering rates were initially over 20% in the basic test area

is that the basic area did not have an emission inspection program until 2000, while the enhanced area did have a previous emission inspection program. Although the tampering rates in both test areas are showing over a 50 percent reduction in three calendar years, the basic area tampering rate continues to exceed the enhanced area tampering rate, despite the fact that basic area vehicles are tested annually and enhanced area vehicles are tested biennially.

Redesign of Repair Data Sheet

The Repair Data Sheet is on the back of each Vehicle Test Report and Compliance Certificate, which is the paper document given to the driver of each vehicle receiving a station-based emissions inspection. The Repair Data Sheet must be filled out prior to a failed vehicle being reinspected, so that the department can collect and analyze the repair information requested on all repaired vehicles. The department provides this analysis to the public in the Repair Facility Performance Report, available at all test stations.

In 2002, the department redesigned the Repair Data Sheet to provide useful repair strategies for specific types of emission failures so that motorists and repair technicians could follow a logical diagnostic course of action that would lead to more effective repairs. The form was also redesigned to collect more useful information about the types of repairs that were being performed, according to the type of emission test failure that the vehicle exhibited. Lastly, the form was redesigned to make it simpler for Missouri Recognized Repair Technicians (enhanced area), Missouri Qualified Repair Technicians (basic area), and all other vehicle repairers to complete this form prior to the vehicle's reinspection.

License Plate Sticker Thefts Continue

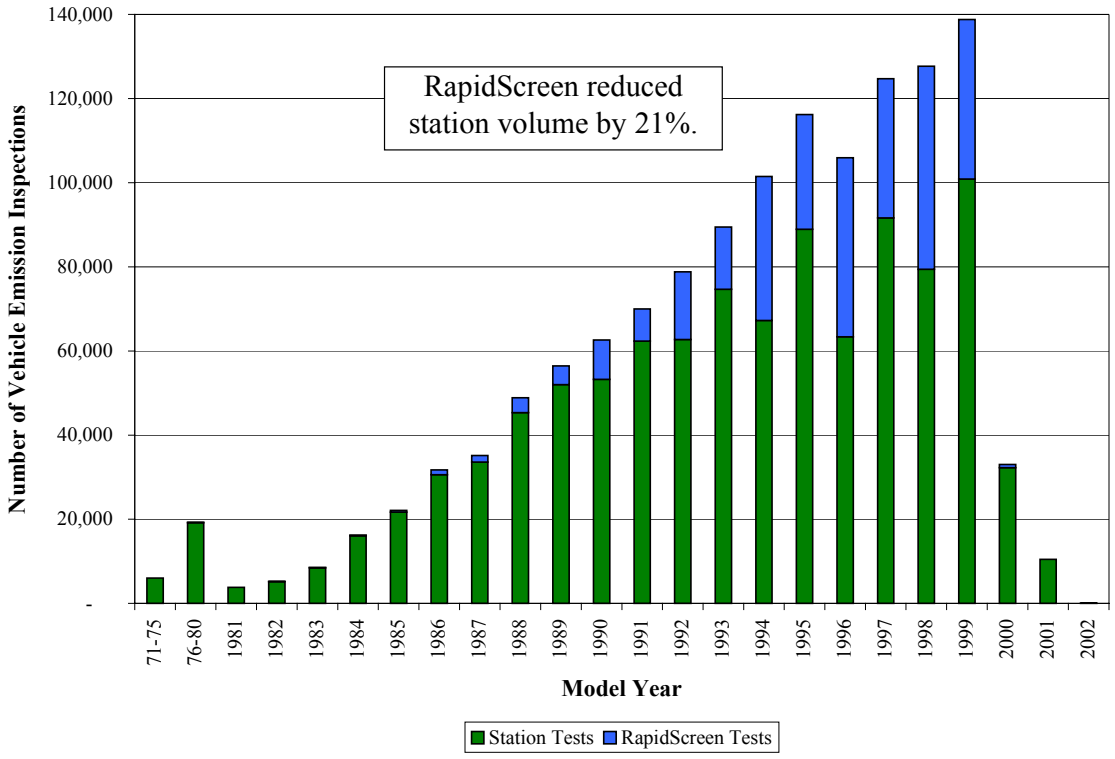
The air quality improvements of the Gateway Clean Air Program are based on effective registration denial. If a vehicle owner does comply with all of the registration requirements, including the emission inspection requirements, the owner receives license plate stickers that visually communicate to law enforcement officials that the vehicle has been legally registered. If a vehicle owner does not comply with the emission inspection requirements, that owner cannot legally register or drive the vehicle, and the owner will not have the license plate stickers necessary to visually communicate to law enforcement officials that the vehicle has been legally registered.

License plate sticker theft has become a growing issue in the St. Louis area since the Gateway Clean Air Program began. By stealing license plate stickers from a legally-registered vehicle and placing those stolen stickers on their own vehicle or illegally selling the stickers to someone else, some motorists are avoiding all of the vehicle registration requirements, including the payment of county property tax, the payment of vehicle insurance, and the obtaining of passing safety and emission inspections. Not only does the victim of this crime have to pay the Missouri Department of Revenue to replace the stolen stickers, but the St. Louis area's motorists who do legally register their vehicles must then absorb the hidden costs of increased county property tax rates due to lost county tax revenue, the hidden costs of increased insurance rates due to accidents involving uninsured motorists, and the hidden costs of unsafe and polluting vehicles being driven in the area due to purposely avoided vehicle safety and emission inspections.

To address this growing concern, the Department of Revenue issued new guidelines to the public, available on the internet at: http://www.dor.mo.gov/mvdl/motorv/tabtheft.htm, about where the stickers are to be placed on the license plate to deter theft. Issued in October 2002, these new guidelines have not eliminated the license plate sticker theft problem, and additional preventative measures may be required to further reduce this type of crime and the negative financial impact this crime has on both law abiding motorists and St. Louis' economy.

RapidScreen Summary

RapidScreen continues to be an effective motorist convenience element of the Gateway Clean Air Program. During the first two calendar years of operation, RapidScreen reduced the number of vehicles tested at the enhanced stations by 21 percent. This reduction in station volume has increased the convenience of the Gateway Clean Air Program for all affected motorists. For more detailed information about RapidScreen, please see Volume III A and III B of this report.



Program Evaluation Report Summary

The 2002 Program Evaluation Report contains an analysis of the effectiveness of the Gateway Clean Air Program in reducing the emission of hydrocarbons from gasoline-powered vehicles subject to the emission inspection requirements. That report documents that the Gateway Clean Air Program has reduced fleet-wide tailpipe hydrocarbon emissions by 17% after the first two years of testing. In other words, this report validates that St. Louis area motorists are

contributing their fair share to the improvements in St. Louis' air quality that was monitored in calendar years 2000 to 2002. Because the Gateway Clean Air Program is achieving a measurable, positive impact, the quality of life is improving for all St. Louis area residents for whom the program was designed to benefit. This report is available to the public on the internet at: www.dnr.mo.gov/alpd/apcp/gcap/newrelease.htm.

Cost to the Public of Vehicle Emissions Inspections

The air quality improvements documented in the 2002 Program Evaluation Report are not without cost. However, because the Gateway Clean Air Program is a fee-based program, the revenue generated by the program is used to pay for the cost of the program, so no additional state revenue is spent on this program. The revenue collected is used to pay for the land where the test stations are located, the construction of the stations, the purchase and installation of the emissions test equipment, and the ongoing cost to pay for the operation of the test stations and RapidScreen vans, which includes the payroll of the program management and station staff and the utilities consumed by the stations, as well as the Gateway Clean Air Program public information campaign. All of these costs are borne by the department's contractor, ESP Missouri. In addition, a portion of the revenue generated by the program is used to pay for the department's oversight staff. For more information about the department's oversight efforts, see Volume II A and II B of this report.

The table below summarizes the Gateway Clean Air Program revenue collected by the type of emission inspection for the 2001-2002 reporting period.

Test Type	*Test Fee*	*Quantity of Test Type*	*Revenue Collected*
Enhanced Area Test	$ 24.00	1,096,032	$ 26,304,768
Enhanced Area Test - 30 min. wait time discount	$ 14.00	64,714	$ 905,996
Enhanced Area Test - 60 min. wait time discount	$ 4.00	4,157	$ 16,628
RapidScreen Test	$ 24.00	200,929	$ 4,822,296
Basic Area Test	$ 10.50	113,687	$ 1,193,714
2001-2002 Totals		**1,479,519**	**$ 33,243,402**

Cost to the Public of Vehicle Emissions Repairs

With the Repair Data Sheet, the department collects repair information from each motorist whose vehicle is repaired to keep track of the amount of money spent on repairs and provide information to the public about successful repairs. This data collected does not include the money spent prior to a vehicle's emissions test (see Volume III A and III B of this report for a discussion of the on-road evidence that many motorists are choosing to invest in vehicle maintenance or repairs prior to their vehicle's emission inspection); the money spent to bring a vehicle into compliance with the state safety inspection, which includes the visual inspection for the presence of emissions control components; or the money spent on regular vehicle maintenance, such as oil changes or manufacturer's mileage-based recommended parts inspections or replacement.

Because the Repair Data Sheet was redesigned in 2002, the data collected prior to and after the release of the new Repair Data Sheet was not compatible. Therefore, the department has

estimated the amount of money spent to repair vehicles that failed the emissions inspection using the best information available. This estimate does not break the cost of repairs into parts and labor costs, or differentiate between spending at repair shops that employ Missouri Recognized or Qualified Repair Technicians and spending at other repair shops or parts stores.

The table below summarizes the cost of the vehicle emissions repairs paid for during the 2001-2002 reporting period.

	Number of Vehicle Repairs	*Average Repair Cost*	*Total Repair Cost*
2001 Initial Failures	42,725	$ 235	$ 10,043,500
2001 Retest Failures	21,335	$ 115	$ 2,462,950
2001 Totals	64,060	$ 195	$ 12,506,450
2002 Initial Failures	61,493	$ 332	$ 20,428,900
2002 Retest Failures	36,308	$ 113	$ 4,102,700
2002 Totals	97,800	$ 251	$ 24,531,600
2001-2002 Totals	**161,860**	**$ 229**	**$ 37,038,050**

The information in the Number of Vehicle Repairs column is calculated from data found in Attachments 2, 3, 5 and 9 of Volume II A and II B of this report. The information in the Average Repair Cost column is calculated by averaging the cost of repairs from all repaired vehicles for all types of failures, rounded to the nearest whole dollar. The Initial Failure Average Repair Cost increased in 2002 because final IM240 cutpoints require more effective diagnostics and repairs. The Retest Failure Average Repair Cost is an incremental cost above the Initial Failure Average Repair Cost. In the case of vehicles that were retested more than once, each retest was assumed to have occurred after an additional payment of the Retest Failure Average Repair Cost.

Cost to the Public of Gateway Clean Air Program Reductions

Combining the amount of test revenues collected, $33,243,402, with the estimated cost of 161,860 vehicle repairs, $37,038,050, the total cost to the public of the emission reductions achieved by the Gateway Clean Air Program in the second and third years of operation was $70,281,452.

IV. Vehicle Emissions Repair Assistance Program

Research has shown that older model year vehicles, which comprise the vast majority of vehicles that fail vehicle emissions tests, tend to be the worst polluters. Effective repairs to these vehicles can make significant improvements in the air quality of an entire community. (See Volume III A and III B of this report for more information regarding the air quality improvements from older model year vehicles.) Low-income families tend to drive older, high-mileage vehicles, and these vehicles tend to have higher emissions test failure rates. Low-income families whose vehicles fail the emissions test may be faced with financial difficulties related to the cost of getting their vehicles repaired. For this reason, the department, in cooperation with the Department of Social Services' Division of Family Services, began the Vehicle Emissions Repair Assistance (VERA) program in the St. Louis area.

The department applied for federal reimbursement funds under the Congestion Mitigation and Air Quality (CMAQ) Improvement Program. A $2.5 million CMAQ grant, administered locally by the East-West Gateway Coordinating Council, was awarded to the department in June 2000. Financial assistance made up of 80% federal funding and 20% state funding was given to low-income families in the form of a vehicle repair voucher. Vouchers were issued to families whose incomes did not exceed 185 percent of the Federal Poverty Guidelines, based on family size. Only one car per household was eligible for repair assistance.

Vouchers could be used toward $450 worth of repairs on vehicles that have failed the emissions test. The vouchers could only be redeemed at shops that employed Missouri Recognized or Qualified Repair Technicians. Because these recognized and qualified technicians have been specifically trained to properly diagnose and repair vehicle emissions system, this voucher redemption requirement ensured that voucher recipients received the most effective repair for the value of the voucher. Furthermore, the voucher could only be used to repair the vehicle's emissions control systems. The voucher could not be used for safety related items or to replace tampered or missing emissions control components.

The assistance program started March 7, 2001. The Division of Family Services had designated five offices and designated staff within the St. Louis area to process applications on a walk-in or phone-in basis. Although the VERA program was providing a valuable service to all St. Louis area residents in the form of assisted vehicle repair and reduced pollution from vehicles, the Missouri General Assembly did not appropriate the state's 20% portion of the CMAQ grant beyond the end of state fiscal year 2002. As a result, all state agency spending on the VERA program ceased on June 30, 2002. The department searched for a willing local partner to provide the 20% matching funds so that the VERA program could continue after June 30, 2002, but no such partner was identified, and the program ended.

During the 16 months that the VERA program was in operation, 1,754 applications were received. 1,301 applications (74%) were approved. 1,236 vouchers (95%) were redeemed, and $508,290 of the $2.5 million grant was spent. The average repair spending per voucher was $411. 582 vehicles were repaired to pass the emission reinspection, and 563 vehicles were repaired and received a waiver.

V. Enhanced Inspection and Maintenance Rule Amendment

On August 29, 2002, the Missouri Air Conservation Commission adopted an amendment to the enhanced inspection and maintenance rule, 10 CSR 10-5.380 Motor Vehicle Emissions Inspection. The text of this rule is available on the Missouri Secretary of State's web site at: http://www.sos.state.mo.us/adrules/csr/current/10csr/10c10-5.pdf. This rule amendment is designed to increase both the motorist convenience and the air quality benefits of the Gateway Clean Air Program.

The two primary changes required by this rule amendment that will improve air quality and motorist convenience are the redesign of on-board diagnostics testing requirements for 1996 and newer model year vehicles and the tightening of the compliance waiver requirements for all model year vehicles subject to the enhanced vehicle emissions inspection program. More information about the revised on-board diagnostics testing and compliance waiver requirements are described below. Additionally, the rule amendment established the government fleet vehicle reporting requirements, added an annual continuing education requirement for Missouri Recognized Repair Technicians, clarified the RapidScreen test methods and cutpoints, required that vehicle exhaust systems match the manufacturer's original design in order for vehicles to be emission tested, and updated the emission testing equipment requirements to comply with the latest EPA guidelines. The rule amendment containing all of these changes became effective on December 30, 2002.

Revised On-Board Diagnostics Testing Requirements

On-board diagnostics (OBD) is an emission early-warning system required by the federal EPA and installed by vehicle manufacturers on all 1996 and newer model year vehicles. The OBD system continuously monitors all of a vehicle's emissions control components. If any of these components behaves in such a way as to elevate tailpipe or evaporative emissions more than 1.5 times the new vehicle certification limits, then the OBD system illuminates a dashboard Malfunction Indicator Lamp (MIL), also called a "Service Engine Soon" or "Check Engine" light, to alert the owner that emissions-related repairs are necessary. If the motorist responds to the MIL as soon as it is illuminated by bringing their vehicle to a properly trained repair technician, then the motorist will benefit from reduced vehicle maintenance costs and cleaner air.

The OBD system is designed to allow interrogation by hand-held scan tools that can download information about the health of the vehicle's emission control system and sensors. With a vehicle's ignition off, a trained inspector can connect a communication wire to the vehicle and download specific information from the vehicle's OBD computer. If the MIL is on or the vehicle system indicates that a component or sensor is malfunctioning, this information can be used in place of a tailpipe test result to require the vehicle to be repaired.

Because OBD testing is the state-of-the-art testing paradigm for 1996 and newer vehicles, OBD testing has always been a part of the Gateway Clean Air Program design. Originally, pass/fail OBD testing was scheduled to begin on January 1, 2001, according to EPA regulations

promulgated in April 1998. As a result, the Gateway Clean Air Program has been collecting and printing advisory-only OBD information on the Vehicle Test Report and Compliance Certificate since the program began on April 5, 2000.

On April 5, 2001, the EPA finalized a new OBD rule that allowed states with vehicle emission inspection programs to postpone pass/fail OBD testing until January 1, 2002. That rule also gave states the option to seek approval for one or both of two additional extensions, with a maximum extension of the pass/fail OBD testing date until no later than January 1, 2005. The department carefully analyzed EPA guidance and rules and information from other states on the pros and cons of implementing pass/fail OBD testing in Missouri. Based on this analysis, in March 2002, the department requested and later received approval from EPA to delay OBD testing until January 1, 2003, to phase-in OBD testing for two years, and to postpone the beginning of pass/fail OBD testing until January 1, 2005. Missouri was the only state in the country to request and receive approval of both extension options.

Based on this approval, the Missouri Air Conservation Commission adopted an amendment to state rule 10 CSR 10-5.380 that incorporates the following OBD testing requirements into the enhanced vehicle emission inspection program:

- During the two-year phase-in of OBD testing between January 1, 2003, and December 31, 2004, 1996 and newer vehicles that pass the OBD test will skip the IM240 tailpipe test.
- Vehicles that fail the OBD test will receive an IM240 tailpipe test. Vehicles that pass the IM240 tailpipe test will pass. Vehicles that fail IM240 tailpipe test will fail and need to be repaired and retested.
- Beginning January 1, 2005, the OBD test will become pass/fail, and 1996 and newer model year vehicles will no longer be tested with the IM240 test.

Benefits of Revised On-Board Diagnostics Testing Requirements

Although the start of pass/fail OBD testing has been delayed until January 1, 2005, the start of the OBD phase-in period on January 1, 2003, will mark the beginning of increased motorist convenience and air quality effectiveness for the Gateway Clean Air Program. A summary of the benefits of OBD testing are listed below:

- OBD tests take approximately 30 seconds per vehicle, compared to IM240 tests that take approximately 240 seconds. Because more vehicles will be tested in the same amount of time, station wait times will be reduced for all motorists, thereby increasing motorist convenience.
- OBD tests monitor the performance of vehicle emission control components under all operating conditions, compared to IM240 tests that measure tailpipe emissions under limited operating conditions. Because OBD-equipped vehicles will be emission tested with a test that is specifically designed for their level of emission control technology, motorists will be provided with vehicle test results that provide the best measure of their vehicle's emission control system, thereby increasing the value of the emission inspection to the motorist.
- OBD tests identify emission control component or system problems, often before tailpipe emissions increase, whereas the IM240 test can only identify elevated tailpipe emissions after a component has deteriorated or failed, without identifying the specific component or system

that is the cause of the emissions increase. Because the repair of specific component or system problems identified by the OBD test will often occur prior to a measurable increase in tailpipe emissions, the vehicle's catalytic converter will be protected from unnecessary deterioration, thereby allowing motorists to maintain the value of the vehicle's expensive catalytic converter and avoid the need to replace the catalytic converter after the converter's warranty period has expired.

- OBD testing requires relatively low cost equipment that repair technicians already own that allows them to duplicate the OBD test in their facility, whereas the IM240 test requires prohibitively expensive testing equipment that does not allow them to duplicate the IM240 test in their facility. Because repair technicians can duplicate the OBD test in their facility and because OBD-equipped vehicles store specific diagnostic information about why the vehicle failed the OBD test, properly trained repair technicians will be able to more accurately diagnose and repair OBD-equipped vehicles. They will also be able to increase their effectiveness by validating the success of the OBD repair in their facility prior to returning the vehicle to the owner. This in turn reduces the number of trial and error repairs experienced by the public, which reduces both the costs to and the time spent by the public on vehicle repairs, thereby increasing motorist convenience.
- OBD tests monitor the performance of vehicle evaporative emission control components that control hydrocarbon emissions that the IM240 tailpipe test doesn't measure. Because the repair of evaporative emission control components on OBD-equipped vehicles will be required after January 1, 2005, more hydrocarbon emissions can be prevented and/or reduced, thereby improving air quality.
- OBD testing encourages motorists to respond to their vehicle's illuminated MIL prior to an emission inspection, compared with IM240 testing which lets motorists wait to fix an emission-related problem until after the emission inspection. Because more OBD-equipped vehicles will be repaired prior to their next emission inspection, vehicle pollution will be prevented instead of reduced, thereby increasing the positive impact of the Gateway Clean Air Program on St. Louis area air quality.

Revised Compliance Waiver Requirements

The cost of repairing a vehicle that fails an emissions test depends on many factors, including how old the vehicle is, how many miles it has been driven, how many unique parts/systems are in need of repair, how well the vehicle has been maintained, and who is servicing the vehicle. Because of these numerous unknown factors, the Gateway Clean Air Program does not govern the costs to fully repair a vehicle that fails an emissions test. However, the Gateway Clean Air Program is also designed to ensure that the program does not unfairly financially burden any of the affected motorists.

State statute 643.335 RSMo contains a compliance waiver provision so that the Gateway Clean Air Program balances the need for improved air quality with the financial burden placed on individuals with failing vehicles. Through the compliance waiver mechanism, the financial burden of fully repairing a failed vehicle can be spread out over time. By paying more than a minimum dollar amount for partial repairs for a failed vehicle, motorists can obtain a compliance waiver and legally register a vehicle that is emitting excess pollution, as determined by the emission test cutpoints, and have two more years to finance the repair of the remainder of the vehicle's pollution problems.

The state statute governing compliance waivers was passed in 1994 and established the following minimum spending requirements: $75 for 1971 to 1980 model year vehicles, $200 for 1981 to 1996 model year vehicles, and $450 for 1997 and newer model year vehicles. This statute also gave the Missouri Air Conservation Commission the authority to amend these spending requirements on or after January 1, 2001, provided the amended spending requirements did not exceed the federal waiver spending minimums for enhanced vehicle emission inspection programs. EPA's federal rule governing waiver requirements for enhanced vehicle emissions inspection programs established the waiver spending minimum at $450 for all vehicles subject to an emission test, adjusted in January of each year by the ratio of the preceding calendar year's Consumer Price Index to the Consumer Price Index in 1989. In 2002, this adjustment increased the federal waiver spending minimum to $650.

There were two reasons that the Missouri Air Conservation Commission chose to amend the Gateway Clean Air Program's compliance waiver requirements. The first reason involves the department's State Implementation Plan, which is a binding commitment between the department and the EPA to reduce St. Louis area air pollution from many sources, including gasoline-powered vehicles. The second reason involves the department's statutory responsibility to operate a vehicle emission inspection program that is achieving the air quality improvements necessary for the St. Louis area to attain the one-hour ground-level ozone standard. Both reasons are more fully described below.

The first reason that the Missouri Air Conservation Commission amended the compliance waiver requirements was to lower the Gateway Clean Air Program waiver rate to no more than eight percent of the failed vehicles and to maintain EPA's approval of the State Implementation Plan. During 2000-2001, 20 percent, or one in five, of the initially failed vehicles received a compliance waiver. This waiver rate exceeded the department's EPA-approved State Implementation Plan commitment of a maximum waiver rate of eight percent of the initially failed vehicles. In 2002, the implementation of final IM240 cutpoints increased the number of initially failing vehicles and therefore the number of owners who chose to qualify their failing vehicle for a compliance waiver by spending only the minimum amount. As a result, the waiver rate climbed to 25 percent, or one in four, of the initially failed vehicles in 2002. Because the EPA expressed concern to the department in May 2002 that the current waiver rate was exceeding the waiver rate committed to in the State Implementation Plan and jeopardizing the air quality goals set for the Gateway Clean Air Program, this amendment was necessary.

The second reason that the Missouri Air Conservation Commission amended the compliance waiver requirements was to adjust the balance between the Gateway Clean Air Program's air quality and motorist convenience goals so that more vehicle owners would choose to fully repair their vehicles and that the compliance waiver requirements reflected the actual cost of repairing vehicles. Because the compliance waiver requirements were established in 1994, but the Gateway Clean Air Program did not begin until 2000, the waiver requirements no longer reflected the actual cost of repairing vehicles with excess emissions. As a result, many motorists chose to spend the minimum amount necessary to qualify their failing vehicle for a waiver without insisting that the repairs actually decrease the vehicle's tailpipe emissions. As early as 2001, the Missouri Air Conservation Commission and the department received multiple requests from both St. Louis area motorists and the local vehicle repair industry to address the fact that

the existing waiver requirements were defeating the purpose of identifying vehicles with excess emissions by preventing trained repair technicians from fully repairing vehicles that had failed an emission inspection. Because these requests dovetailed with EPA's concerns, this amendment was necessary.

Based on the diverse range of rule amendment comments received during the 30-day public comment period, the Missouri Air Conservation Commission adopted an amendment to state rule 10 CSR 10-5.380 that incorporates the following compliance waiver requirements into the enhanced vehicle emission inspection program:

- Beginning January 1, 2003, the 1971 to 1980 model year vehicle compliance waiver spending minimum will be $200, and the 1981 and newer model year vehicle compliance waiver spending minimum will be $450. Beginning January 1, 2005, 1996 and newer vehicles will not be eligible to receive a compliance waiver.
- Beginning January 1, 2003, failed vehicle retest results must show a reduction in the gases that failed the initial test without showing an increase in the gases that passed the initial test above the passing cutpoints.
- Beginning January 1, 2003, repair technicians must document to their customers what their diagnosis determined was the cause of the elevated emissions, what the customer authorized to be repaired, and whether the repairs authorized were effective at reducing the vehicle's emissions.

Benefits of Revised Compliance Waiver Requirements

In conjunction with the start of the OBD phase-in period, the implementation of these revised compliance waiver requirements will also mark the beginning of increased motorist convenience and air quality effectiveness for the Gateway Clean Air Program. A summary of the benefits of these revised compliance waiver requirements are listed below:

- More stringent compliance waiver requirements will cause more St. Louis area motorists to demand effective vehicle repair service from the St. Louis area vehicle repair industry. More vehicles will be fully repaired prior to their retest, which will reduce both the number of vehicles being retested multiple times and motorist wait times at the test stations, thereby increasing motorist convenience.
- Clearer vehicle repair receipts will communicate to motorists the value of the service they are paying for, reduce or eliminate disputes between repair shops and their customers, increase customer satisfaction for repair facilities who are successful at repairing vehicles with excess emissions, and reduce the time it takes to issue a compliance waiver, thereby increasing motorist convenience.
- The increased demand from motorists for effective repairs will allow properly trained repair technicians to apply the knowledge and skills they have acquired, thereby directly improving St. Louis area air quality, one successful vehicle repair at a time.
- More vehicles being fully repaired will reduce the compliance waiver rate and the number of vehicles on the road that are emitting excess pollution. Even the vehicles that receive a compliance waiver will have to reduce their excess pollution to stay on the road, thereby increasing the Gateway Clean Air Program's positive impact on St. Louis area air quality.

VI. Public Information Campaigns

ESP Missouri is required to conduct a Gateway Clean Air Program public information and education campaign on behalf of the department. For the first two years of operation, the contractor must spend at least $2.1 million from the collected test fee revenues to distribute information to the public. Thereafter, the contractor must spend an annual amount of at least $630,000 from the collected test fee revenues on public information and outreach regarding the vehicle emission inspection and maintenance program.

Public information efforts have included a variety of elements and materials to inform and educate St. Louis area motorists. These efforts include radio, television, print and billboard advertising; media appearances on television and radio to explain the program; emissions test notification mailings; printing and distribution of fact sheets, brochures and other literature; maintaining a web site (www.gatewaycleanair.com) and a toll-free information line (1-888-748-1247); giving public presentations to community groups; and staffing information booths at public events. The contractor has also spent money to publish a bimonthly newsletter and conduct free training sessions and open houses for the St. Louis area vehicle repair industry. Details of the 2001 and 2002 public information efforts are described below.

In addition to the considerable outreach and promotional efforts conducted in 2001 and 2002, the program also maintained current and investigated new partnership opportunities. The Gateway Clean Air Program has continued as an active member of the St. Louis Regional Clean Air Partnership (www.cleanair-stlouis.com), a public-private partnership formed to increase awareness of regional air quality issues and to encourage activities that citizens and businesses can do to reduce air pollution. The Gateway Clean Air Program has also partnered with AAA Missouri to provide low-cost, high-value OBD training to St. Louis area vehicle repair technicians, and has cultivated stronger or new working relationships with the American Lung Association of Eastern Missouri, the Alliance of Automotive Service Professionals – Missouri, the St. Louis Community College at Forest Park's Automotive Technology program, and the St. Louis Science Center.

2001 Public Information Campaign

In 2001, ESP Missouri spent $752,039 on public information, bringing the 2000-2001 spending total to $3,309,327. Throughout 2001, public education was in the forefront of the public information efforts. Through use of an advertising/informational campaign, distribution of press releases and media alerts, and participation in area fairs and festivals, Gateway Clean Air Program representatives were able to increase outreach efforts in comparison with the first year of operation. These outreach efforts, in conjunction with other endeavors, helped to strengthen the Gateway Clean Air Program's position as a successful part of Missouri's overall efforts to improve St. Louis area air quality.

The Gateway Clean Air Program utilized paid print advertising in 2001, focusing on five St. Louis area newspapers. Supplemental efforts included the distribution of press releases and updates to the program's web site. Additionally, Gateway Clean Air Program representatives participated in a variety fairs and conferences, such as Fair St. Louis and the Missouri Black Expo, reporting a positive experience at each event. As a result, plans were made to increase

these public outreach efforts for 2002. Other promotional and public information endeavors included updating program publications, web site pages and the automated messages heard on the toll-free information line according to programmatic changes; celebrating the one-millionth vehicle emission test; and developing strategies for effective outreach regarding the implementation of final IM240 cutpoints in the enhanced testing area in 2002.

In 2001, the Gateway Clean Air Program commissioned a public opinion survey, conducted and completed by the University of Missouri's Center for Advanced Social Research, to collect information from the testing public and to help identify areas for future public information efforts. The overall results of the survey reflected a positive reaction about the Gateway Clean Air Program from those surveyed. Information from this survey was used to plan 2002 public information efforts, but the results themselves were not used in specific outreach campaigns. Based on the first survey, plans were made to conduct another, more detailed survey in 2002.

As a result of the ongoing improvements made to the Gateway Clean Air Program and the public information campaign conducted, positive media coverage slightly outweighed negative media coverage of the Gateway Clean Air Program in 2001. Out of 205 program-related media stories across the television, print and broadcast mediums, 52 percent were positive, and 48 percent were negative.

2002 Public Information Campaign

In 2002, ESP Missouri spent an estimated $700,000 on public information. Throughout 2002, Gateway Clean Air Program representatives met and solicited the opinion of those impacted by the vehicle emission inspection requirement so as to evaluate the public's perception of the program and its performance. In all, the 2002 public information efforts were well rounded, and the public perceived those efforts as beneficial.

The Gateway Clean Air Program primarily focused its 2002 public information campaign on effectively advertising two key messages to the public, one for RapidScreen and one for vehicle preventative maintenance. The RapidScreen advertising campaign was designed to educate motorists about the customer convenience of RapidScreen, thereby increasing RapidScreen notice redemption rates and reducing the number of vehicles being emission tested at a test station. The preventative maintenance advertising campaign was designed to educate motorists about the benefits of vehicle preventative maintenance, including longer vehicle useful life, increased vehicle value and performance and, most importantly, cleaner air. The advertising campaigns were conducted using television, print and movie theater mediums. Supplemental efforts for both campaigns included the distribution of press releases and updates to the program's web site.

The Gateway Clean Air Program also increased its public outreach efforts in 2002. In the first two years of operation, the program had participated in select area fairs and festivals. However, these efforts were expanded to include additional festivals throughout the testing area, such as the St. Louis County and Franklin County Fairs. This effort brought Gateway Clean Air Program representatives into direct contact with more of the affected public to discuss various issues of interest and provide information about the upcoming changes related to the amended enhanced vehicle emissions inspection rule. Program representatives reported a positive

experience at each event but noted that attendance at each event and interest in the Gateway Clean Air Program was lower than expected. As a result, the Gateway Clean Air Program decided to limit participation in these festivals for future public information campaigns.

As planned, the Gateway Clean Air Program commissioned a second, more detailed public opinion survey, also conducted and completed by the University of Missouri's Center for Advanced Social Research, in the fall of 2002. Results of that survey will help shape the Gateway Clean Air Program's future public information efforts. The overall results of this second survey indicate that most motorists understand the need for the Gateway Clean Air Program and its relevance to better St. Louis regional air quality.

Other promotional and public information endeavors accomplished in 2002 included a revision of the video that is played in the motorist waiting areas in the enhanced area test station, a production of printed and web site materials on the phase-in of OBD testing, waiting area explanatory signage about the sights and sounds of the enhanced area test stations; and revisions as necessary to program publications, web pages and toll-free information recordings.

As a result of the ongoing improvements made to the Gateway Clean Air Program and the public information campaign conducted, positive media coverage outweighed negative media coverage in 2002. Out of 67 program-related media stories across the television, print and broadcast mediums, 51 percent were positive, 30 percent were neutral, and 19 percent were negative. This 2002 media coverage, which overlaps with the overall results of the second public opinion survey, indicates that the Gateway Clean Air Program's public information efforts have played an important role in successfully communicating the vehicle emission inspection program's relevance and importance to the affected public in the St. Louis area.

VII. Conclusion

The second and third operating years of Gateway Clean Air Program have been marked by continuous improvements. The Department of Natural Resources and our contractor, ESP Missouri, have made ongoing strides to make the Gateway Clean Air Program as convenient to motorists as possible while continuing to improve the air quality benefits of the program. To accommodate the needs of motorists and their vehicles, the program has been flexible and will remain responsive. The Department of Natural Resources values this program as a vital part of the effort to reduce air pollution and improve the health of citizens who live in or near St. Louis.

The information in this report demonstrates that the Gateway Clean Air Program is complying with the EPA-approved State Implementation Plan. Based upon the information provided in the three volumes of this report, the Department of Natural Resources' Air Pollution Control Program recommends that the program be continued.

For copies of or more information regarding the Gateway Clean Air Program 2001 & 2002 Annual Reports, please write or call:

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